

**CHAPTER 61G15-32**  
**RESPONSIBILITY RULES OF PROFESSIONAL ENGINEERS CONCERNING THE DESIGN OF FIRE PROTECTION SYSTEMS**

61G15-32.001	General Responsibility
61G15-32.002	Definitions
61G15-32.003	Common Requirements to All Fire Protection Engineering Documents
61G15-32.004	Design of Water Based Fire Protection Systems
61G15-32.005	Design of Gas Agent Fire Suppression Systems
61G15-32.006	Design of Foam and Foam Water Fire Suppression Systems
61G15-32.007	Design of Dry Chemical and Miscellaneous Fire Suppression or Control Systems
61G15-32.008	Design of Fire Alarms and Detection Systems
61G15-32.009	Design of Fine Water Spray (Mist) Fire Suppression and Control Systems

**61G15-32.001 General Responsibility.**

Fire protection engineering documents shall be prepared in accordance with applicable technology and the requirements of the authority having jurisdiction. The documents shall identify the Engineer of Record for the project. Both the Engineer of Record for the fire protection system and the delegated engineer, if utilized, shall comply with the requirements of the general responsibility rules, Chapter 61G15-30, F.A.C., and with the requirements of the more specific rules contained herein. The Engineer of Record for the Fire Protection System(s) shall provide design requirements in writing to the delegated engineer if one is used and shall review the design documents of the delegated engineer for conformance with his written instructions in accordance with Rule 61G15-30.005, F.A.C. Any Fire Protection Delegated Engineering Documents must be included in the final set of documents filed for permit.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History--New 5-19-93, Formerly 21H-32.001, Amended 3-26-09.*

**61G15-32.002 Definitions.**

(1) Engineer of Record for the Fire Protection System(s): The Florida Registered Professional Engineer who develops the Fire Protection System(s) design criteria; performs analysis as required; and is responsible for the preparation of the Fire Protection System Engineering Documents. Except to the limited extent provided in subsection 61G15-32.002(10), F.A.C., the Engineer of Record for the Fire Protection system(s) is responsible for providing sealed, signed and dated Fire Protection System Engineering Documents that are in full conformity with the applicable design standards set forth in Rule Chapter 61G15-32, F.A.C.

(2) Fire Protection Component: Any individual part, subsystem or device to be incorporated in a Fire Protection System.

(3) Fire Protection System: Any assembly of Fire Protection components, materials, equipment, which require design to form a fully functional fire protection system.

(4) Listed: A fire protection component tested by a nationally recognized fire protection equipment testing organization. Recognized organizations include Underwriters Laboratories, Inc. and Factory Mutual Research Corporation.

(5) Fire Protection System Engineering Documents: The fire protection system engineering drawings, specifications, prescriptive and performance criteria, water supply analysis and other materials or representations, which are submitted with the general construction documents pursuant to Section 553.79(6), F.S., that set forth the overall design requirements and provide sufficient direction for the contractor to layout the construction, alteration, demolition, renovation, repair, modification, permitting and such, for any public or private fire protection system(s), which are prepared, signed, dated and sealed by the Engineer of Record for the Fire Protection System(s).

(6) Fire Protection System Layout Documents: Layout drawings, hydraulic calculations, catalog information on standard products, and other construction data prepared by the licensed contractor or Engineer of Record that provides detail on the location of risers, cross mains, branch lines, sprinkler heads, sizing of pipe, hanger locations, and hydraulic calculations and also serves as a guide for fabrication and installation of a fire protection system. Fire Protection System Layout Documents are based upon engineering direction provided in the Fire Protection System Engineering Documents and require no additional engineering input. These documents do not require the seal of a Florida registered engineer.

(7) Codes and Standards: Those nationally recognized codes and standards adopted directly or by reference in Chapter 633,

F.S., Florida Building Code (2007) and Florida Fire Prevention Code set forth in Chapter 69A-60, F.A.C. Applicable codes and standards also include those promulgated by State and local authorities having jurisdiction. In the event the codes and standards fail to cover or address a specific protection requirement, alternative research, test results, and engineering data may be utilized, relying on the Engineer of Record for Fire Protection to make an informed engineering decision. This definition is not intended to preclude the use of new technologies when said technology has been demonstrated to provide equivalent or improved protection above that of published National Fire Protection standards.

(8) Material Deviation: Any deviation from the design parameters established and documented by the Engineer of Record.

(9) Layout: The location of risers, cross mains, branch lines, sprinkler heads, sizing of pipe, hanger locations, and hydraulic calculations based on engineering documents.

(10) Fire Protection Delegated Engineering Documents. Fire Protection System Engineering Documents prepared by a delegated engineer to whom the Engineer of Record for the Fire Protection System has contractually delegated responsibility for the design to be simultaneously submitted for permit of a discrete and limited portion of a fire protection system and which are signed, sealed and dated by the delegated engineer. These documents shall be reviewed and approved by the Engineer of Record for the Fire Protection System for conformity with the Engineer of Record's design intent and shall be included in the engineering design documents prepared prior to submittal for a building permit and Fire Department installation permit, except when no building permit is required. When no building permit is required, the delegated engineering work bearing the seal of delegated engineer and approval of the Engineer of Record for the Fire Protection System shall be submitted together to the fire official for permitting.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.005(7), 471.033(2) FS. History—New 5-19-93, Formerly 21H-32.002, Amended 4-2-00, 6-26-01, 3-26-09, 10-11-10.*

### **61G15-32.003 Common Requirements to All Fire Protection Engineering Documents.**

(1) The Fire Protection System Engineering Documents shall provide the engineering requirements to be used in the preparation of the Fire Protection System Layout Documents and to indicate the nature and scope of the work, and to describe, detail, dimension, label and define the Fire Protection Components, System(s), materials, assemblies, equipment and its structural and utility support system(s), insofar as they involve the safeguarding of life, health or property.

(2) The Fire Protection System Engineering Documents shall specify the applicable requirements for the acceptance testing of the fire protection system and components, which shall be based upon applicable codes and standards, where available.

(3) The occupancy of the area or description of a specific hazard being protected by the Fire Protection System(s) shall be shown on the Fire Protection System Engineering Documents.

(4) The applicable code and standard to be used in the preparation of the Fire Protection System Layout Documents shall be shown on the Fire Protection System Engineering Documents. When codes and standards are not available or applicable, and said layout documents are to be based on engineering judgment, any reasons and assumptions made to develop the fire protection concept shall be identified on the Fire Protection System Engineering Documents.

(5) Structural support and structural openings required by the Fire Protection System shall be shown on the Fire Protection System Engineering Documents and shall be referenced on structural engineering documents.

(6) When layout documents contain material deviation from the Engineer of Record's Fire Protection System Engineering Document, such layout documents are not compliant unless they are accompanied by revised Engineering Documents made and sealed by the Engineer of Record for the Fire Protection System.

(7) Requirements for activation control systems, sequence, operating parameters, interlocks, safety related devices, indicators and alarms, shall be shown on the Fire Protection System Engineering Documents, unless shown on other related documents.

(8) Any information deemed appropriate by the Engineer of Record to assist the authority having jurisdiction in understanding the owner's intended use and proposed protection of the building or facility and to provide sufficient direction to the installation contractor or other interested parties regarding the layout of the system(s), shall be included in the Fire Protection System Engineering Documents.

(9) Fire Protection Electrical Engineering Documents shall additionally meet the requirements of Rule 61G15-30.003, F.A.C., Engineering Documents.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.005(7), 471.033(2) FS. History—New 5-19-93, Formerly 21H-32.003, Amended 4-2-00, 6-26-01, 3-26-09.*

#### **61G15-32.004 Design of Water Based Fire Protection Systems.**

(1) Water Based Fire Protection Systems include, but are not limited to, automatic sprinkler systems of wet, dry, fine water spray (mist), manual, and deluge valve controlled types, pumping systems, standpipes, fire water mains and dedicated fire protection water sources.

(2) To ensure minimum design quality in Fire Protection System Engineering Documents, said documents shall include as a minimum the following information when applicable:

(a) The Point of Service for the fire protection water supply as defined by Section 633.021(18), F.S.

(b) Applicable NFPA standard to be applied, or in the case where no such standard exists, the engineering study, judgments, and/or performance based analysis and conclusions.

(c) Classification of hazard occupancy for each room or area.

(d) Design approach, which includes system type, densities, device temperature rating, and spacing for each separate hazard occupancy.

(e) Characteristics of water supply to be used, such as main size and location, whether it is dead-end or circulating; and if dead-end, the distance to the nearest circulating main, as well as its minimum duration and reliability for the most hydraulically demanding design area.

(f) When private or public water supplies are used, the flow test data, including date and time of test, who conducted test or supplied information, test elevation, static gauge pressure at no flow, flow rate with residual gauge pressure, hydrant butt coefficient, and location of test in relation to the hydraulic point of service.

(g) Valving and alarm requirements to minimize potential for impairments and unrecognized flow of water.

(h) Microbial Induced Corrosion (MIC). The Engineer of Record shall make reasonable efforts to identify water supplies that could lead to Microbial Induced Corrosion (MIC). Such efforts may consist of discussions with the local water purveyor and/or fire official, familiarity with conditions in the local area, or laboratory testing of water supplies. When conditions are found that may result in MIC contamination of the fire protection piping, the engineer shall design corrective measures.

(i) Backflow prevention and metering specifications and details to meet local water purveyor requirements including maximum allowable pressure drop.

(j) Quality and performance specifications of all yard and interior fire protection components.

(k) A determination of whether a fire pump is required and if so, the specific volumetric flow and pressure rating of the pump.

(l) A verification of whether a firewater storage tank is required on site and if so, a determination of the size and capacity required.

(m) Owner's Certificate. In storage occupancies, the Owner's Information Certificate is required from the property owner as it clearly defines the storage configuration of the space for the current and future use of the property, as required by the codes and standards set forth in subsection 61G15-32.002(7), F.A.C.

(3) Contractor submittals which deviate from the above minimum design parameters shall be considered material deviations and require supplemental engineering approval and documentation.

(4) In the event the Engineer of Record provides more information and direction than is established above, he or she shall be held responsible for the technical accuracy of the work in accordance with applicable codes, standards, and sound engineering principles.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.033(2) FS. History—New 5-19-93, Formerly 21H-32.004, Amended 4-2-00, 6-26-01, 6-15-15.*

#### **61G15-32.005 Design of Gas Agent Fire Suppression Systems.**

(1) Gas Agent Fire Suppression Systems include, but are not limited to, CO<sub>2</sub>, Halon, inerting and purge gases, and all other gaseous formulations and multi-phase agents released for the purpose of fire control or extinguishment.

(2) The Fire Protection System(s) design specifications shall be based on applicable NFPA standards when available, or alternative engineering sources and good engineering practice when required.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History—New 5-19-93, Formerly 21H-32.005.*

#### **61G15-32.006 Design of Foam and Foam Water Fire Suppression Systems.**

(1) Foam and Foam Water Fire Suppression Systems include local application, total flooding, high and low expansion foams,

and foam-water sprinkler systems.

(2) The Fire Protection System design specifications shall be based on applicable NFPA standards, when available, or alternative engineering sources and good engineering practice when required.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History—New 5-19-93, Formerly 21H-32.006.*

#### **61G15-32.007 Design of Dry Chemical and Miscellaneous Fire Suppression or Control Systems.**

(1) Dry chemical and miscellaneous systems include, but are not limited to, dry chemical systems, explosion control systems, and fire control structures.

(2) The Fire Protection System design specifications shall be based on applicable NFPA standards, when available, or alternative engineering sources and good engineering practice when required.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History—New 5-19-93, Formerly 21H-32.007.*

#### **61G15-32.008 Design of Fire Alarms and Detection Systems.**

(1) Fire alarms and detection systems include fire protection supervision, emergency alarm circuits, activation of life safety system controls and remote signaling of emergency conditions.

(2) The design specifications shall be based on the Florida Building Code (2007), the Florida Fire Prevention Code, or as required by the local authority having jurisdiction.

(3) For fire alarm plans on small systems below the threshold requirements for mandatory use of professional engineering services, the Engineer of Record shall specify the minimum system requirements.

(4) To ensure minimum design quality of Fire Alarm and Detection Systems Engineering Documents, said documents shall include as a minimum the following information when applicable:

(a) The plans shall be clear, with a symbols legend, system riser diagram showing all initiation and notification components, and cabling requirements. Indicate locations where fire ratings are required as determined by the system's survivability requirements. Identify the general occupancy of the protected property, and for each room and area unless it is clear from features shown.

(b) Locate initiation and notification devices and connections to related systems on the floor plans and sections when needed for clarity. Related systems include elevator controls smoke control systems, dampers, and doors.

(c) Strobe intensity and speaker output ratings for all notification devices.

(d) Identify the Class and Style of circuits as listed in the NFPA 72.

(e) Identify the functions required by the alarm and control systems including the transmission of emergency signals being monitored or annunciated.

(f) Indicate whether the fire alarm is conventional or addressable, and indicate all zoning.

(g) Locate surge protective devices and required protective features.

(h) Locate system devices that are subject to environmental factors, and indicate requirements for the protection of equipment from temperature, humidity or corrosive atmospheres, including coastal salt air.

(i) The plans shall include a site plan of the immediate area around the protected building, structure or equipment when alarm devices are required outside the structure.

(j) In buildings where smoke detection will be obstructed by walls, beams or ceiling features, the Engineer of Record shall provide applicable design and details to direct the installer to mitigate the obstructions. In buildings with smoke detection under a pitched roof, the plans shall indicate the roof pitch and a building section shall be provided as part of the Engineering Design Documents.

(k) Fire detection systems utilizing smoke detection in situations where smoke stratification is anticipated, the design shall provide the necessary criteria to mitigate the detection problems.

(l) Systems designed using Performance Based criteria shall be identified and referenced to design guides or standards approved by the local authority having jurisdiction consistent with standards adopted by the Florida Fire Prevention Code and the Florida Building Code (2007).

(m) The system design must indicate if the system is to provide a general evacuation signal or a zoned evacuation for all high-rise buildings or multi-tenanted properties as defined in the Florida Building Code (2007).

(n) Wiring requirements for underground, wet locations, campus style wiring, protection against damage and burial depth shall be specified or indicated on the engineering design documents.

(o) Requirements for operations and maintenance procedures, manuals, system documentation, and instruction of Owner's operating personnel, as needed to operate the systems as intended over time.

(5) In the event that the Engineer of Record elects to specify specific equipment and to show the required wiring, battery and voltage drop (circuit analysis) calculations shall be completed. The calculations shall be completed using the equipment manufacture's data and applicable NFPA 72 procedures.

(6) System test requirements shall be noted on the Engineering Design Documents.

(7) When the engineer determines that special requirements are required by the owner, insurance underwriter or local fire code amendments these requirements shall be documented or referenced on the Engineering Design Documents.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History—New 5-19-93, Formerly 21H-32.008, Amended 3-26-09.*

#### **61G15-32.009 Design of Fine Water Spray (Mist) Fire Suppression and Control Systems.**

(1) Fine water spray (mist) systems include water based fire suppression and control systems based on NFPA 750.

(2) The fire protection system(s) shall be based on applicable NFPA standards when available or on alternative engineering sources including full scale fire testing and good engineering practice when no applicable standard exists.

(3) Design of fine water spray systems requires specific knowledge of hazards, physical containment and fire dynamics. A "pre-engineered" listed system shall be installed only after the engineer of record has evaluated the project specific protected hazard.

*Rulemaking Authority 471.008, 471.033(2) FS. Law Implemented 471.005(6), 471.033(2) FS. History—New 4-2-00.*